

# Arizona's Instrument to Measure Standards (AIMS)

## 2004 - 2005 Student Guide High School



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# Questions About AIMS

## What is AIMS?

Arizona's Instrument to Measure Standards (AIMS) is an assessment program that measures your achievement of the Arizona Academic Standards adopted by the state Board of Education in three subject areas: Reading, Writing, and Mathematics.

## Who has to take AIMS?

All students in grades 3 – 8 and high school are required to participate in AIMS testing. The high school test will be only one of the requirements for a diploma. Testing conditions may be modified or adapted for some special needs students according to their Individual Education Plans (IEPs). **High school students must pass the AIMS by 2006 in Reading, Writing, and Mathematics as a graduation requirement.**

## When will I take AIMS in High School?

You will take the tests for the first time in the spring of your sophomore year. You must retake those tests you do not pass each time the test is given (once each semester). If you do not pass any one of the three tests, you will have the opportunity to retake the **test(s) you did not pass** in the fall and/or spring of your junior year, and in the fall and/or spring of your senior year (5 tries altogether).

Those students who *meet* the Standards, but wish to *exceed* the Standards are encouraged to retake only the AIMS portions needed to improve their scores.

## What will be tested on AIMS?

Test items were written to measure specifically the Standards, Concepts and Performance Objectives described in the Arizona Academic Standards (Articulated by Grade Level for Reading and Mathematics), which were approved by the state Board of Education in March 2003. There will be an Extended Writing Prompt that students will use to actively engage in the writing process. Your writing will be scored using the Six Trait™ Model Rubric. There will be no multiple-choice questions on the writing test.

Each of the Standards is built on a structured framework that spans kindergarten to twelfth grade, representing concepts and skills you have been learning since starting school. Within these Standards are the Concepts and Performance Objectives that are specific to each grade level. Although every Standard in Reading and Mathematics is assessed each time AIMS is given, different Concepts and Performance Objectives are tested on different forms of the tests. Therefore, you need to be prepared for **all** Standards, Concepts and Performance Objectives.

## How can I use this guide to prepare for AIMS?

This guide is divided into three subject areas assessed on AIMS. It a short explanation of each testing format, hints for test taking, sample test questions, and a scoring guide for written responses. It will NOT teach you what you should know and be able to do to score well on the tests, but it will help you become familiar with the tests.

**Arizona State Guidelines for AIMS can be found on the ADE website:**

<http://www.ade.az.gov/standards/>

### **How can I prepare for AIMS?**

- Attend school regularly.
- Thoroughly read and become familiar with the Arizona's Academic Standards documents so that you understand exactly what you are expected to know and be able to do.
- Ask questions.
- Take charge of your own learning! Monitor your progress. Self-assess what you know, what you can do well, and where you need to improve.
- Actively participate in class.
- Have a scheduled time and place to study and do homework.

## **Types of Items**

### **MULTIPLE-CHOICE**

Multiple-choice items will require you to select the BEST response from four possible answer choices and indicate your choice by bubbling in the corresponding letter on an answer sheet. Although some responses will require a recall of facts, or the computation of a correct answer, many of the items will require higher-level thinking and processing. Each multiple-choice item is scored correct (1 point), or incorrect (0 points), and contributes one point to the overall score.

### **EXTENDED WRITING RESPONSE**

The extended response item will ask you to respond to a prompt, which might include writing a letter, an essay, or a narrative. These responses will require a well-developed and well-organized presentation of ideas that follow a particular format suitable to the purpose and audience. You will be expected to develop your written response by following the steps in the writing process: prewriting, drafting, revising, editing, and producing a final copy. You will be provided with a revision checklist to guide your work. Your finished copy, not your prewriting or rough draft, will be scored using a six-point rubric that scores each trait or characteristic of effective writing. The rubric for this type of item is provided in the Appendices.

# READING

Reading is fundamental to all learning and supports us as lifelong learners. It can open our minds to people, places, and ideas beyond our own experiences. It gives us the knowledge we need to make informed choices as responsible citizens in a democratic society. One needs only to browse the Internet to realize how much information is available to us at our fingertips. Understanding what we read, using the wealth of information available to us, and thinking critically about what we read, are crucial skills to function successfully in today's world.

## ABOUT THE TEST

On AIMS, you will be given several passages to read, both fiction and nonfiction. You may also be given informational text to read; for example, labels and pages from manuals. The questions will assess your ability to understand, interpret, and analyze what you have read. There are approximately 60 multiple-choice items on the Reading test, which should be completed in 1-2 hours. One sample passage is provided in this guide followed by a set of questions. Reading this passage and answering the questions may help you prepare for the test.

## HINTS FOR TAKING AIMS-READING

- You will be asked to read different types of fiction and nonfiction, so adjust your reading to your purpose. Read each passage and the accompanying questions carefully.
- In the multiple-choice questions, choose the **best** response to the question.
- Think about each question before you respond.
- Manage your time so that you won't feel rushed answering questions that require more thought. Again, this is not a timed test, but you do want to use your time well.

## **Copperton Community Foundation**

3489 Mesquite Boulevard   Copperton, AZ 34566   (888) 293-3151

# **Volunteer Leadership Scholarship**

### **Scholarship Criteria**

The Copperton Community Foundation (CCF) awards three \$1000 scholarships each year. The CCF is a group of citizens dedicated to promoting education, improving our country, and recognizing outstanding examples of citizenship. The scholarships are available to Copper County high school seniors who have established an exceptional pattern of volunteer service.

Applicants are expected to enroll in either a full-time, approved technical training program or in an approved community college or university for at least nine credit hours. Applicants must provide an official copy of their registration. Recipients must complete the classes in which they enroll.

All eligible applications will be considered. Twelve semifinalists will be notified by telephone two weeks before the final interviews. The selection committee will conduct interviews in late April and announce the award winners in early June.

Award winners may renew their scholarships for each of the following three years of education. Renewal requires maintaining a 3.0 grade point average and performing at least forty hours of volunteer service during the calendar year. Award recipients must provide official transcripts, registration information, and confirmation of their volunteer service activities.

The Copperton Community Foundation Committee will consider only those applications received before the first business day in April.

### **Application Procedure**

1. Answer all questions on the application. Attach extra sheets if necessary.
2. Include two letters of recommendation in sealed, signed envelopes. One must be from the supervisor of a volunteer service activity in which you participated.
3. Mail the completed application, recommendation letters, and your most recent, official transcript to the committee at the above address.

# Copperton Community Foundation

## Application for the Volunteer Leadership Scholarship

### Biographical Information (Please print legibly.)

Name (Last, First, and MI) \_\_\_\_\_

Parent/Guardian Name \_\_\_\_\_

Social Security Number \_\_\_\_\_ Phone Number \_\_\_\_\_

Current Address \_\_\_\_\_

City/State/Zip \_\_\_\_\_

School Attending \_\_\_\_\_

### Volunteer Service Activities

On a separate sheet, please list and briefly describe your volunteer service activities during the past two years. Include your roles, responsibilities, and honors.

### Essay

Select one of the following topics. Type and double-space your response. Use no more than three pages.

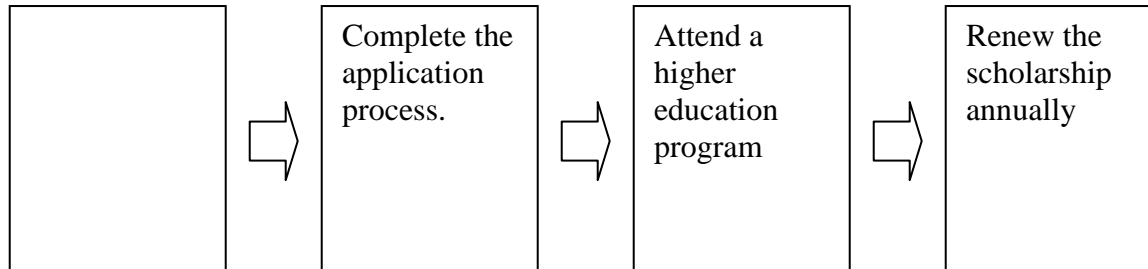
1. Describe a local or national leader whom you admire. What do you consider to be his or her greatest achievement or accomplishment? What qualities and traits do you see in this person that you wish to emulate?
2. Describe an experience from your own life and discuss how it has helped you grow as a leader. What significant lessons did you learn from the experience? How will you apply those lessons in your future?
3. Describe the three most important qualities of a leader and explain why they are essential for success. Cite present-day leaders to illustrate your viewpoint.



1. What is the purpose of the application?

- A** To evaluate the essays
- B** To identify school leaders
- C** To screen potential recipients
- D** To define the eligibility and screening process

2. Look at the graphic organizer.



Which option best completes the graphic organizer?

- A** List your relevant biographical information.
- B** Participate in volunteer service projects
- C** Conduct research about a national leader
- D** Obtain two letters of recommendation

3. What is a requirement of the recommendation letters?

- A** one must be from the volunteer's supervisor
- B** one must describe the applicant as a leader
- C** one must describe the community service
- D** one must be from an academic advisor

4. Based on the Scholarship Criteria, what can the reader infer about the Copperton Community Foundation?

- A** The foundation is concerned about student behavior.
- B** The foundation values athletic and academic achievement.
- C** The foundation is committed to encouraging good citizenship.
- D** The foundation prefers students who excel in the arts.

5. Which section provides the most information about the Copperton Community Foundation?
- A** Scholarship Criteria
  - B** Application Procedure
  - C** Biographical Information
  - D** Volunteer Service Activities
6. Which applicant would be MOST likely to be considered by the CCF?
- A** a senior with limited leadership experience
  - B** a junior with extensive volunteer experience
  - C** a junior with extensive leadership experience
  - D** a senior with extensive volunteer experience
7. What trait is the Copperton Community Foundation recognizing in its scholarship program?
- A** generosity
  - B** leadership
  - C** courage
  - D** caring
8. How does the Copperton Community Foundation promote academic excellence through its scholarship program?
- A** by requiring students to write essays
  - B** by requiring applicants to reapply
  - C** by requiring applicants to interview
  - D** by requiring students to maintain a 3.0
9. What topic do all three essay options include?
- A** national service
  - B** volunteer service
  - C** qualities of a leader
  - D** attributes of success
10. What must an applicant do to renew the scholarship?
- A** complete at least 40 hours of community service
  - B** maintain a 3.5 GPA
  - C** maintain a part-time job
  - D** complete a new application

11. What should a completed application contain?

- A** biographical information, double-spaced essay, community service list, two letters of recommendation, and list of honors
- B** two letters of recommendation, three double-spaced essays, community service list, unofficial transcript, and list of awards
- C** biographical information, double-spaced essay, community service list, two letters of recommendation, and official transcript
- D** two letters of recommendation, unofficial transcripts, community service list, three double-spaced essays, biographical information

# Writing

Writing is a critical skill for effective communication. Whether you are writing an e-mail message, a personal letter, an ad for your business, or a formal report for school or work, being able to express your ideas clearly to your audience is important. Becoming a good writer is not easy. It takes effort and development of a variety of skills: clear ideas, organization, a voice that holds the interest of your audience, and a consistent control of language, including word choice, sentence structure, and conventions (spelling, grammar, punctuation and capitalization). With new technology, it is possible to electronically communicate in writing with people all over the world in a matter of minutes. Writing will continue to be a communication skill that is required in most professions and workplace environments. Acquiring effective written communication skills will enhance both your personal and professional opportunities.

## ABOUT THE TEST

You will be expected to write one extended writing piece on a specific topic. This writing test will be completed in one session, so all steps in the writing process, including revising and editing, and a final copy, will be done in that one session. The test should take approximately 2-3 hours to complete. There is an example of a writing prompt and scored student responses to this prompt that follow.

### Sample Prompt

People are always looking for ways to improve schools, and some of the best ideas come from students. Think of ONE change you could propose to make your school better. Write an essay to CONVINCE other students and teachers in your school to agree with you.

## Hints for taking AIMS – Writing

### Prior to the test

- Read the three sample student responses to the prompt on the following pages. Note strengths and weaknesses in the paper as you read. Does the writer accomplish the task? Is the writer's message clear? Are the ideas supported with convincing evidence and support? Are the ideas organized so that you can logically follow them? Is the voice appropriate? Did the writer carefully choose words that are clear and convincing? Do the sentences have a natural flow? Is the paper carefully edited?
- Discuss with other students and your teacher why one paper is stronger or more convincing than another.

- Practice writing a persuasive response to this sample prompt. Score your own paper using the rubric to determine what your strengths are, and then work on areas you need to improve to be a more effective writer.

### **During the test**

- Listen to directions and read the prompt carefully and be sure you understand the purpose before beginning to write.
- Take time to organize your thoughts before you begin to write. For the extended writing prompt, you may want to create a graphic organizer (outline, web, chart, map, cluster, etc.) to plan and organize your ideas.
- Take advantage of the opportunity to revise your work using the checklist provided. Keep in mind the six traits (characteristics) of effective writing.
- Edit your writing carefully. Your audience (the reader) needs to be able to understand the ideas you are expressing without being hindered by spelling, punctuation, capitalization, and grammar mistakes that interfere with the message. **You must be sure your handwriting is legible. Printing your work is acceptable; however, be sure to distinguish between upper- and lower-case letters. Do NOT print in all capital letters.**

### **Keep in mind...**

- You will be given two pages in the test booklet to write your final copy. It is important that you take advantage of the two pages you are given to develop your ideas fully. This is your opportunity to demonstrate how well you can write.
- Your final copy needs to be handwritten (not done on a computer).
- You may use a dictionary or thesaurus as a reference during the Extended Writing Response portion of the test.
- Be conscious of the traits, or characteristics, of effective writing (idea development, organization, voice, word choice, sentence fluency, and conventions) no matter what kind of writing you are asked to do. The same scoring guide, or rubric, will be used for all the types of writing you may be asked to compose: narrative, persuasive, expository, or formal communication.

**To examine additional papers with a range of higher and lower trait scores, visit the Oregon Department of Education website @: <http://open.k12.or.us/standards/cimcri/cimcriw.html>. We extend our thanks to them for allowing us to reproduce these sample papers.**

### Sample Prompt

People are always looking for ways to improve schools, and some of the best ideas come from students. Think of ONE change you could propose to make your school better. Write an essay to CONVINCE other students and teachers in your school to agree with you.

NOTE: In previous editions of the *High School Student Guide to AIMS*, sample student papers were electronically scanned into the *Guide*. However, the resulting document was difficult to read and slow to download. These scans were also of uneven quality and some portions of the student essays were not legible. For these reasons, the sample student papers were typed in a font to suggest a student's written response in this edition of the *Guide*.

## WRITING SAMPLE 1

### *Having a Separate Middle School*

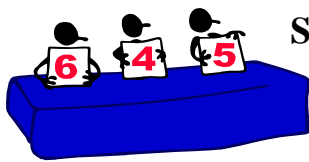
*Each day students in grades seven through twelve roam the halls of our high school. They function as a large group, and sometimes that isn't always easy for either upper or underclassmen, because of crowding and class arrangements. What can solve this predicament? Grades five through eight should be combined and made separate from the high school.*

*Some people may feel that these students in grades five through eight would miss a chance to be around other people to see as models and learn from. This is a definite loss, but they would make up for this by having the advantage of being able to control what rules and policies would affect them and they would have a smaller group to work with. Anyone who has walked the halls of our high school will agree that after the bell there is "bumper to bumper pile up" in the halls getting to each class. Providing a middle school would enable both the older and younger students to have their own class, lunch and break times. Undoubtedly cutting down on the "traffic jam" and making these breaks and class times more enjoyable for students during the school day.*

*The question now may be where would the money come from to expand, pay new teachers, and get new resources? The money would be less, due to the fact that we already have two teachers and most of the resources needed to teach these particular students. The money is worth spending because it would give students an enjoyable learning environment.*

*Some people think that having a separate middle school may make middle school students feel less involved with the whole school's activities. This would be a minor problem, because the middle school has already got it's own sports programs. The students could be building their own government, they could learn more about leadership and responsibility to others. This government would also produce middle school representatives who could get many more of the younger students ideas across to the older student's in a more effective way. In turn, the middle school students would have an advantage in leadership skills, while working their way to high school. Having these activities should improve learning abilities and the desire to work in their own units.*

*We should provide a new, separate learning time for grades five through eight. Having their own middle school would give them the time they need to gain confidence and learning skills needed as they progress through high school and on into the future.*



## SCORE SHEET FOR WRITING SAMPLE 1

Title: Having a Separate Middle School

(This IS an acceptable response.)

Ideas and Content						
6	5	4	3	2	1	

Organization						
6	5	4	3	2	1	

Voice						
6	5	4	3	2	1	

Word Choice						
6	5	4	3	2	1	

Sentence Fluency						
6	5	4	3	2	1	

Conventions						
6	5	4	3	2	1	

**NOTE:** The underlined passages are taken from the Official Scoring Guide for AIMS Writing.

**Ideas and Content:** This paper scored a 4 in ideas and content. The writing is clear and focused: Grades five through eight should be combined and made separate from the high school. Supporting details are relevant but overly general or limited in places: *The money required to pay teachers and get new resources would be less due to the fact that we already have two teachers and most of the resources needed to teach these particular students. The money that would be spent is worth spending because it would give students an enjoyable learning environment.* The topic is explored; however, developmental details are out of balance. Much emphasis is placed on educational and social benefits; little in-depth attention is placed on practical issues of facilities and fiscal impact.

**Organization:** This paper scored a 4 in organization. Order and structure are present but seem formulaic. A developed beginning provides background to the issue and clarifies the position of the writer. Reasons supporting particular points of view are presented and followed by reasons supporting counter points of view. Transitions between paragraphs are sometimes weak. The piece ends with a strong statement summarizing the best supporting argument: *Having their own middle school environment would give them the time they need to gain the confidence and learning skills needed as they progress through high school and on into the future.*

**Voice:** This paper scored a 4 in voice. The writer demonstrates commitment to the topic but is somewhat stiff at times: *In turn the middle school students would have an advantage in leadership skills...Having these activities should improve learning abilities and the desire to work in their own units.*

**Word Choice:** This paper scored a 5 in word choice. Vocabulary is striking and varied but not overdone: *...after the bell there is a "bumper to bumper" pile-up in the halls...* Words are accurate and specific and seem carefully chosen: *The students could be building their own government and in doing this, they could feel even more independent.*

**Sentence Fluency:** This paper scored a 4 in sentence fluency. There is strong control over simple sentence structures but variable control over more complex sentences: *This is a definite loss, but they would make up for this by having the advantage of being able to control what rules and policies would affect them and they would have a smaller group to work with. In turn the middle school students would have an advantage in leadership skills, while working their way to high school.* At one point a fragment detracts from the natural flow of the piece: *Undoubtedly cutting down on the "traffic jam" and making these breaks and class times more enjoyable for students during the school day.*

**Conventions:** This paper scored a high 3 in conventions. The writing demonstrates limited control of standard writing conventions. Strengths include correct spelling and appropriate use of question marks and hyphenated words. There are several errors involving plurals and possessives: *This would be a minor problem, because the middle school has already got it's own sports programs. This government would also produce middle school representatives who could get many more of the younger students' ideas across to the older student's in a more effective way.* Internal punctuation contains some errors: *This is a definite loss, but they would make up for this by having the advantage of being able to control what rules and policies would affect them and they would have a smaller group to work with.* Occasional errors in grammar and usage do not block meaning but distract the reader.



## WRITING SAMPLE 2

### *Foreign Languages by Satellite*

*At the present time our school is offering Spanish I and II and German I and II by satellite. For students who are involved in the program, this means watching a taped broadcast monitored by a coordinator during their language class. A hotline with a 1-800 number is available for students to ask questions, practice speaking, and get help on assignments. However, class time cannot be used to call, and the coordinator is not required to know either language herself. The arrangement is not practical or effective. Foreign languages should be taught by a certified teacher who knows the language, not by satellite.*

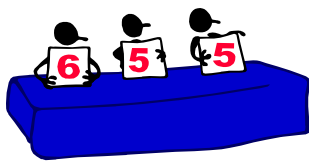
*The foremost argument in favor of the satellite program is that it is significantly cheaper than hiring a certified teacher to teach foreign languages. With a limited budget, this may seem like a good answer, but in reality the amount of learning is decreased so much that it would be worth it to spend the extra money to hire a teacher instead. The quality of education is lowered by offering satellite courses instead of foreign languages taught by a classroom teacher.*

*According to supporters of foreign language instruction by satellite, students learn to be self-directed learners and are forced to become organized and responsible for their own learning in order to do well in the class. This is true, but people learn in different ways, and the satellite program is not best for most people. What happens for many students is that they become frustrated and fall behind, after which it is very hard to get caught up.*

*Too much is lost by taking a foreign language course by satellite. No speaking of the language takes place in class, so students don't learn how to pronounce words or speak fluently. Advances in reading and writing of the language occur, but not verbally. Words are spoken on the broadcasts, but not often enough for students to really catch on, and if students aren't practicing speaking, they soon forget. Calling in on their own time is also difficult for some students to do. Besides, it is hard to understand pronunciation over the phone, especially when most of the people who answer the hotline speak quickly with thick accents. Pronunciation tests are part of the grading, which most students do poorly on because of lack of practice and knowledge. Then, there is the problem of the coordinator not knowing how to pronounce words or mispronouncing them, which can lead to confusion.*

*The university that makes the broadcasts began broadcasting in the fall before school started at our school. As a result of this, our school is behind on the broadcasts. Missed school days, because of weather, power outages, and other variables have caused the school to fall further behind. An example of what this can mean for students is that they may be watching a tape talking about the Day of the Dead (the Spanish equivalent of Halloween) in December, or a tape during which they get to make Christmas decorations in January. Another problem with the timing is that a pace is set without the needs of specific classes in mind. Sometimes students need more work in an area before proceeding, but don't get it and become frustrated as they are forced to move on. Other times students need less time on the broadcasts taken up with certain subjects and become bored.*

*Considering the points on both sides, it is clear that having a certified classroom teacher for foreign language classes is much more productive, effective, and worth the money than offering the courses by satellite. Therefore, our school should hire a qualified classroom teacher to teach foreign language classes in the future.*



## SCORE SHEET FOR WRITING SAMPLE 2

Title: Foreign Languages by Satellite

(This IS an acceptable response.)

<b>Ideas and Content</b>
6 (5) 4 3 2 1

<b>Organization</b>
6 (5) 4 3 2 1

<b>Voice</b>
6 (5) 4 3 2 1

<b>Word Choice</b>
(6) 5 4 3 2 1

<b>Sentence Fluency</b>
6 (5) 4 3 2 1

<b>Conventions</b>
6 (5) 4 3 2 1

**NOTE:** The underlined passages are taken from the Official Scoring Guide for AIMS Writing.

**Ideas and Content:** This paper scored a 5 in ideas and content. The paper demonstrates clarity, focus and control throughout. The introduction provides background information and clarifies the purpose. Main ideas are supported with relevant, carefully selected details. The writer acknowledges the foremost reasons for offering satellite courses and presents counter positions by sharing insights and providing specific examples that support the proposal. The writing presents a balanced exploration of the topic.

**Organization:** This paper scored a low 5 in organization. Order is strong and helps the reader through the text. The structure is formulaic but nevertheless highly effective given the purpose of the paper. Effective transitions connect ideas and details within paragraphs; however, transitions are somewhat weak between paragraphs.

**Voice:** This paper scored a 5 in voice. The writer has chosen a voice appropriate for the topic, purpose and audience. The writer has a strong sense of the audience and effectively communicates ideas about a serious topic in a way that is engaging and sincere.

**Word Choice:** This paper scored a low 6 in word choice. Part of the paper's strength is derived from the writer's ability to use clear and precise language. Accurate, strong, specific words energize the writing: For students who are involved in the program this means watching a taped broadcast monitored by a coordinator during their language class. A hotline with a 1-800 number is available for students to ask questions, practice speaking and get help on assignments. The writer establishes a great deal of credibility with the reader.

**Sentence Fluency:** This paper scored a low 5 in sentence fluency. The writing has an easy flow and rhythm. There is variation in sentence structure, length and beginnings that add interest to the text. In all but a few places, the writing has a natural sound and the reader can move easily throughout the piece. Occasionally, there are lapses in stylistic control: Advances in reading and writing the language occur, but not verbally. Some fairly complex sentence structures are used with variable control: *Other times students need less time on the broadcasts taken up with certain subjects and become bored.*

**Conventions:** This paper scored a 5 in conventions. The writing demonstrates strong control of standard writing conventions and uses them effectively to enhance communication. The paper shows skill in using a wide range of conventions in a sufficiently long piece.

### WRITING SAMPLE 3

#### *Drug and Alcohol Class*

*In my school, I would like to see a alcohol and drug class be taken.*

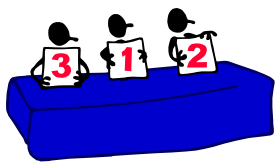
*Because some kids really need help. Some kids come to school high and drunk during school hours.*

*Drugs class would be good for some people. It might show what drugs could do to you and your body. What drugs could do to your body and your brain.*

*Some drugs can make you really sick. I think they should be I think they should be a drug class and alcohol class too.*

*We really need these class. It should require to take before you should leave school. It would help some kids realize what they do to you.*

*My High school should have these class. Alcohol class should be taken too. Because alcohol is the most dangerous drugs there is in this world to day. Alcohol is not required under the age 21 years old. Some people started at the age of fifteen years old and they get into trouble everytime they drink on weekends. I really think it should be taken in my High school.*



## SCORE SHEET FOR WRITING SAMPLE 3

Title: Drug and Alcohol Class

(This is NOT an acceptable response.)

### Ideas and Content

6 5 4 3 (2) 1

### Organization

6 5 4 3 (2) 1

### Voice

6 5 4 (3) 2 1

### Word Choice

6 5 4 3 (2) 1

### Sentence Fluency

6 5 4 3 (2) 1

### Conventions

6 5 4 (3) 2 1

**NOTE:** The underlined passages are taken from the Official Scoring Guide for AIMS Writing.

**Ideas and Content:** This paper scored a 2 in Ideas. The writing is characterized by minimal development and insufficient details: it might be good for some people...it would help some kids realize what they do to you. There is extensive repetition of detail; the writer repeats the ideas that *we should have this class* several times without developing in any detail why.

**Organization:** This paper scored a 2 in organization. The writing lacks a clear organizational structure...some attempts at sequencing, but the order of relationships seems unclear. Paragraphs seem randomly placed and there is a lack of clear transitions between paragraphs. Undeveloped beginning, body and end.

**Voice:** This paper scored a low 3 in voice. There is an occasional sense of the writer behind the words, but this disappears a line later: Some drugs can make you really sick...alcohol is the most dangerous drug there is in this world today. I think there should be a drug class and alcohol class too. A limited sense of audience; the writer's awareness of the reader is unclear.

**Word Choice:** This paper scored a 2 in word choice. Language is monotonous and misused. Words are colorless, flat, or imprecise; monotonous repetition: Would...could...should...it...are overused, detracting from impact. Misuse of simple words such as: *they* for *there*. *Alcohol is not required under the age of 21 years old.*

**Sentence Fluency:** This paper scored a 2 in sentence fluency. Awkward constructions cause the reader to slow down or reread: It should require to take before you should leave school. Because some kids really need help. Sentence patterns are monotonous. *Drug class would be good...they should be a drug class, our high school should have this class...I really think it should be taken.*

**Conventions:** This paper scored a low 3 in conventions. The writing demonstrates limited control of standard writing conventions; errors begin to impede readability. End of sentence punctuation is usually correct, but internal punctuation contains frequent errors. Errors in grammar and usage do not block meaning but do distract the reader: Alcohol class should be taken too. Because alcohol is the most dangerous drugs in this world to day.

# MATHEMATICS

Mathematics is used as a means to communicate about quantities, logical relationships, and unknowns. Such a simplistic statement may make students who are not planning to go to college ask why mathematics is necessary for them.

While the ability to do computation is important, it is the skills of problem finding and problem solving, formalizing, abstract thinking, symbolic representation and interpretation, formulation of logical arguments, and objective reasoning that allow us to function effectively and understand our world.

Mathematics is the one area of coursework in the high school curriculum where students are taught these skills, and where answers cannot be obtained just by common sense and guessing. Even without an every-increasing reliance on technology, mathematical skills meet needs for practical everyday life, intelligent citizenship, and future employment. A study by Arizona State University indicated that students who opt out of advanced levels of mathematics and science may now eliminate up to 75% of career opportunities from which to choose<sup>†</sup>. Algebra has been called the academic passport for passage into virtually every facet of the job market. Employers want their employees to be able to set up problems, estimate solutions, identify how accurate solutions need to be, work with other people to reach goals, know the many different types of mathematics that exist, and determine which one is needed in a particular situation. It is clear that the mathematical literacy of the twentieth century will NOT be sufficient for the twenty-first century.

<sup>†</sup> ASU Research, Fall, 1998, p. 41

## ABOUT THE TEST

The mathematics test contains approximately 100 multiple-choice questions. Calculators are not allowed; however, the calculations required can be readily handled. The questions will emphasize conceptual understanding, process, and problem solving skills rather than just computation skills.

## Hints for taking AIMS – Mathematics

- Remember, this is not a timed test. Take your time and do your best work.
- Since calculators are not allowed on this test, double-check your work!
- Check to see if your answer is reasonable.

# **Sample Questions for Mathematics**

## **What To Expect From This Section**

This AIMS Student Guide for Mathematics provides examples of the format and types of questions that will appear on AIMS Mathematics. An attempt has been made to provide a sampling of the types of questions that might be asked; however, not every concept in each standard has a corresponding sample question in this Guide. An answer key for all Mathematics sample questions is provided in the appendices. Additionally, you will find an AIMS Reference Sheet in the appendices. The reference sheet in the actual AIMS Mathematics test will be revised to reflect on the formulas and other information that will be included on the test.

### **Standard 1: Number Sense**

#### **General concepts you should know:**

- Real number system and its various subsystems (natural, whole, integers, rationals, and irrationals)
- Operations with positive and negative numbers
- Scientific notation
- Estimation strategies

1. Which of the following sets of numbers is not infinite?  
  
A. {natural numbers less than 8}  
B. {odd integers less than 8}  
C. {rational numbers less than 8}  
D. {real numbers less than 8}

2. What is the value of the expression below?  
$$27 - (9 - 6)^2 \cdot 3$$

- A. 54
- B. 9
- C. 0
- D. -108

3. Eight friends went out to dinner together before prom. The restaurant adds a gratuity (tip) of 15% to the total for groups of 8 or more. The cost of the meals was \$270.40, including tax. Which amount is closest to the total cost of dinner, including the gratuity?

- A. \$325
- B. \$311
- C. \$284
- D. \$41

### **Standard 2: Data Analysis, Probability and Discrete Mathematics**

#### **General concepts you should know:**

- Graphs (histograms, line graphs, circle graphs, box-and-whisker plots, frequency charts, stem-and-leaf plots, and scatter plots)
- Measures of central tendency, variability and correlation (mean, median, mode, quartiles, and range)
- Sample vs. census
- Biased vs. unbiased samples
- Pattern prediction
- Misuses of statistics
- Probability
- Positive and negative correlation
- Probable outcomes of events
- Systematic listing and counting; outcomes sets
- Use of combinations vs. permutations

4. The state of Arizona encompasses 113,642 sq. mi. of land and 364 sq. mi. of water. California encompasses 155,973 sq. mi. of land and 7,734 sq. mi. of water. Which matrix below represents these data?

A. 
$$\begin{matrix} & \begin{matrix} \text{Land} & \text{Water} \end{matrix} \\ \begin{matrix} \text{Arizona} \\ \text{California} \end{matrix} & \begin{bmatrix} 7,734 & 155,973 \\ 364 & 113,642 \end{bmatrix} \end{matrix}$$

B. 
$$\begin{matrix} & \begin{matrix} \text{Land} & \text{Water} \end{matrix} \\ \begin{matrix} \text{Arizona} \\ \text{California} \end{matrix} & \begin{bmatrix} 155,973 & 7,734 \\ 113,642 & 364 \end{bmatrix} \end{matrix}$$

C. 
$$\begin{matrix} & \begin{matrix} \text{Land} & \text{Water} \end{matrix} \\ \begin{matrix} \text{Arizona} \\ \text{California} \end{matrix} & \begin{bmatrix} 113,642 & 364 \\ 155,973 & 7,734 \end{bmatrix} \end{matrix}$$

D. 
$$\begin{matrix} & \begin{matrix} \text{Land} & \text{Water} \end{matrix} \\ \begin{matrix} \text{Arizona} \\ \text{California} \end{matrix} & \begin{bmatrix} 113,642 & 7,734 \\ 155,973 & 364 \end{bmatrix} \end{matrix}$$

5. The table below shows the median commuting distance to work (1-way) for given Arizona cities.

City	Median Commute (in miles)
Phoenix	8
Peoria	21
Chandler	15
Mesa	12

Based on the table, which of the following statements must be true?

- A. People from Mesa have the longest commute.
- B. All people from Phoenix commute at least 8 miles.
- C. More people commute from Peoria to Phoenix than from Phoenix to Peoria.
- D. At least half the population of Chandler has a commute of 15 or fewer miles.

6. Each of the events below is performed randomly. Which includes a dependent event?

- A. A card is drawn from a deck of playing cards, replaced in the deck, and a second card is drawn from the deck.
- B. A spinner with 8 congruent sectors is spun, the number is marked, and the spinner is spun again.
- C. A fair coin is flipped, the side it landed on is marked, and the coin is flipped again.
- D. Twenty differently numbered tiles are put into a bag. One tile is drawn, the number is marked, the tile is set aside, and a second tile is drawn.

7. The principal wants to read the list of candidates for prom queen. There are 6 candidates. How many ways can the principal introduce the candidates?

- A. 2160
- B. 720
- C. 21
- D. 6

### **Standard 3: Patterns, Algebra and Functions**

**General concepts you should know:**

- Graphing, evaluating, simplifying, and solving linear equations and inequalities
- Real and rational roots
- Systems of linear equations
- Domain and range of equations
- Graphical representations of functions ("vertical line" test)

8. Mrs. Herrera started a sequence of numbers by adding the first three terms to get the fourth term. Her first three terms were 3, 5, and 8, which gave 16 as the fourth term. To get each new term she added the three preceding terms. The first 5 terms of her sequence are below.

3, 5, 8, 16, 29, ...

Which of the following is the 7<sup>th</sup> term in her sequence?

- A. 45
  - B. 53
  - C. 98
  - D. 106
9. Jamal calculated that it costs \$0.43 per mile and \$4.00 per day to operate his car. If Jamal drives  $m$  miles over  $d$  days, which equation below expresses the cost,  $C$ , of driving the car, in terms of  $m$  and  $d$ ?
- A.  $C = \$4.00d + \$0.43m$
  - B.  $C = \$0.43d + \$4.00m$
  - C.  $C = \$4.30d + \$4.00m$
  - D.  $C = \$4.00d + \$4.30m$
10. Which value of  $y$  makes the proportion below true?

$$\frac{5}{-3+y} = \frac{8}{y+6}$$

- A.  $y = 2$
- B.  $y = 3$
- C.  $y = 11$
- D.  $y = 18$

11. What is the sum of the solutions for the quadratic equation below?

$$3x^2 + x - 2 = 0$$

- A.  $-1\frac{2}{3}$
- B.  $-\frac{1}{3}$
- C.  $\frac{1}{3}$
- D.  $1\frac{2}{3}$

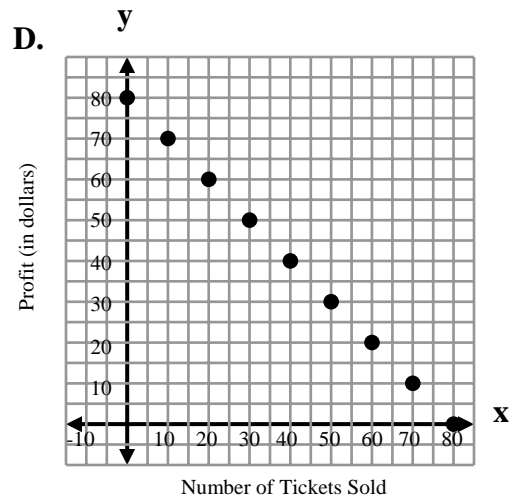
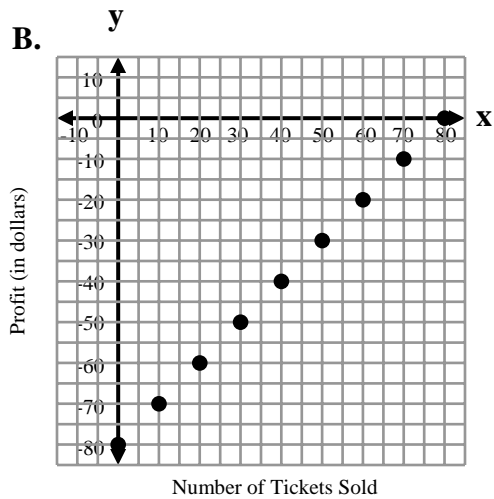
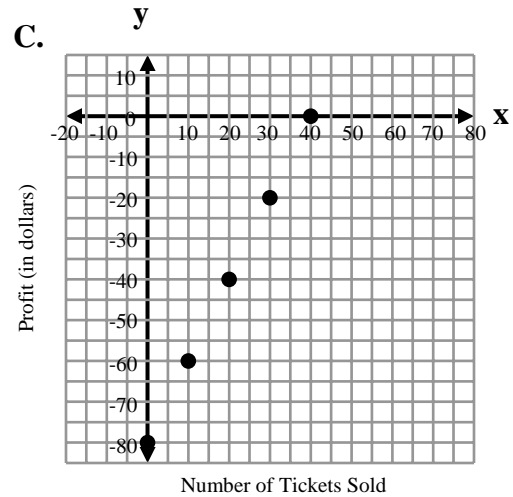
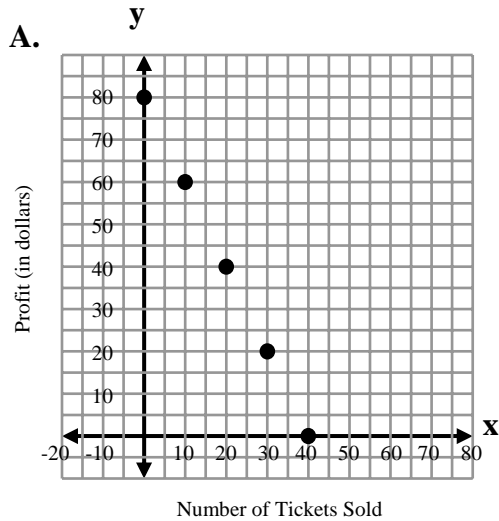
12. Given:  $A = \begin{bmatrix} -5 & 3 \\ 4 & -3 \end{bmatrix}$  and  $B = \begin{bmatrix} 2 & -1 \\ 0 & 7 \end{bmatrix}$

Which of the following is the sum,  $2A + 3B$ ?

- A.  $\begin{bmatrix} -4 & 3 \\ 8 & 15 \end{bmatrix}$
- B.  $\begin{bmatrix} -16 & 9 \\ 8 & -27 \end{bmatrix}$
- C.  $\begin{bmatrix} -16 & 9 \\ 12 & 5 \end{bmatrix}$
- D.  $\begin{bmatrix} -4 & 3 \\ 4 & 4 \end{bmatrix}$



13. The student council at a school held a raffle using donated prizes. They spent \$80 for promotions and additional prizes. The tickets were sold for \$2 each. Which graph best represents their total profits as a function of the number of tickets sold?

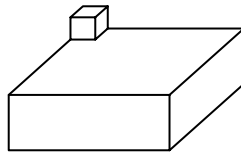


## Standard 4: Geometry and Measurement

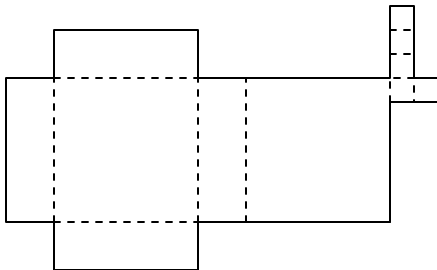
### General concepts you should know:

- Pythagorean Theorem
- Triangle characteristics (congruence and similarity relationships)
- Angle characteristics (complementary, supplementary, and congruent)
- Circle characteristics (arcs, chords, tangents, and secants)
- Identification of prisms, pyramids, cones, cylinders, and spheres
- Coordinate plane characteristics (coordinates, distance and midpoint)
- Transformations (reflections, rotations, dilations, translations; symmetry)
- Appropriate units of measure, applications of techniques and formulas
- Perimeter, area, volume; measuring line segments, lines, angles, 2-D and 3-D figures

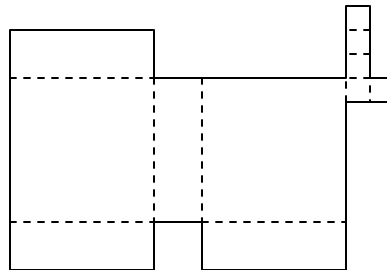
14. Which net below best represents the following object?



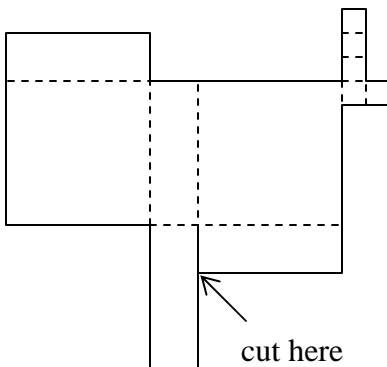
A.



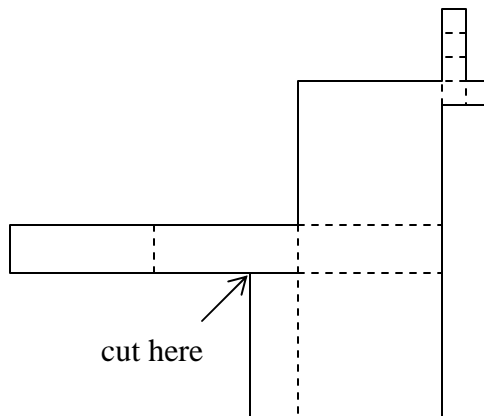
C.



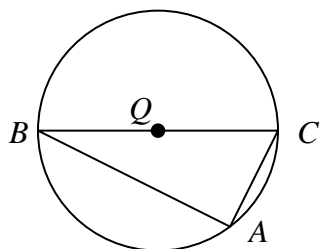
B.



D.



15. The points A, B, and C lie on circle Q below, in which  $\overline{BC}$  is a diameter.

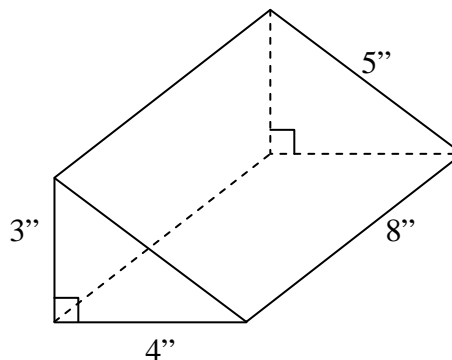


In circle Q, what is the measure of angle CAB, in degrees?

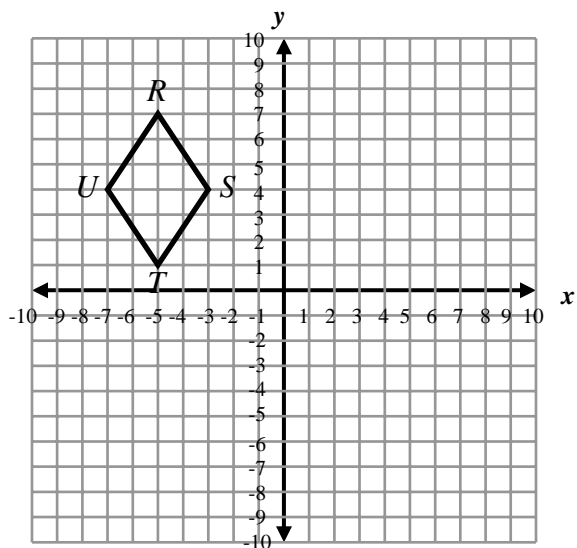
- A.  $360^\circ$
  - B.  $180^\circ$
  - C.  $90^\circ$
  - D.  $60^\circ$
16. What is the length of the line segment that has endpoints at  $(-5, 3)$  and  $(4, 5)$ ?

- A.  $\sqrt{121}$
- B.  $\sqrt{85}$
- C.  $\sqrt{65}$
- D.  $\sqrt{11}$

17. What is the surface area of the triangular prism represented below in square inches?



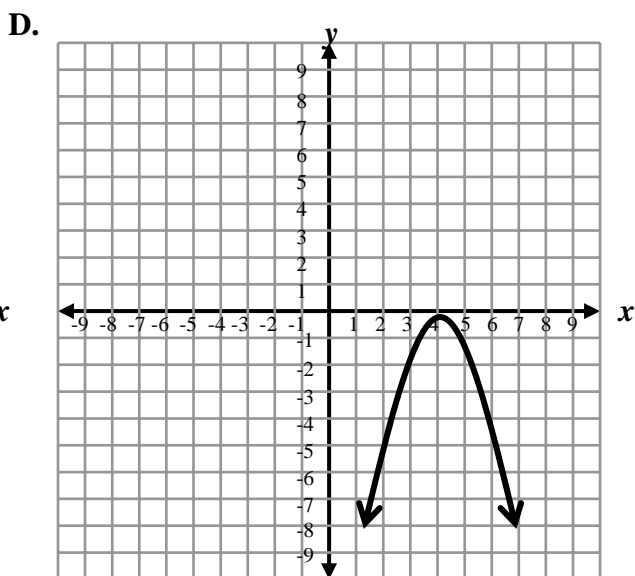
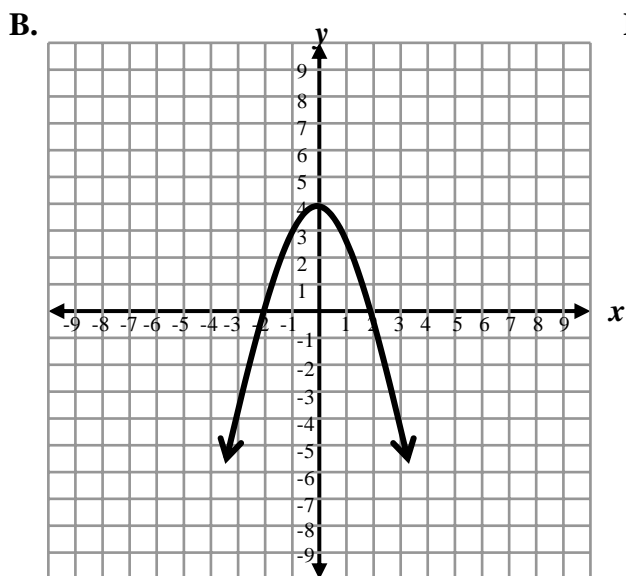
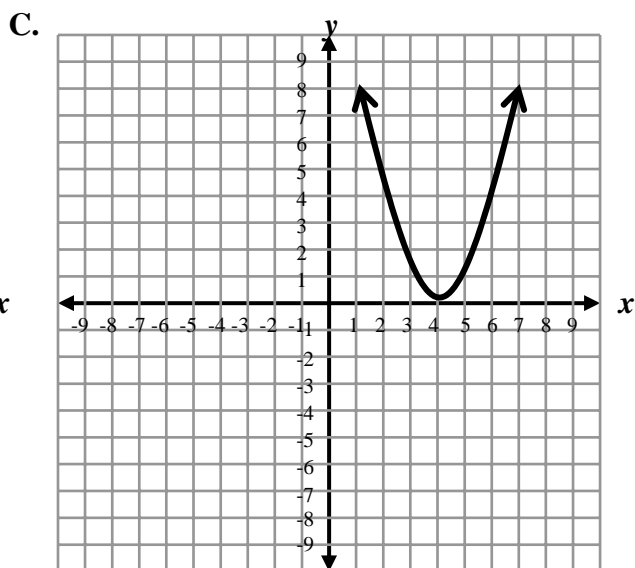
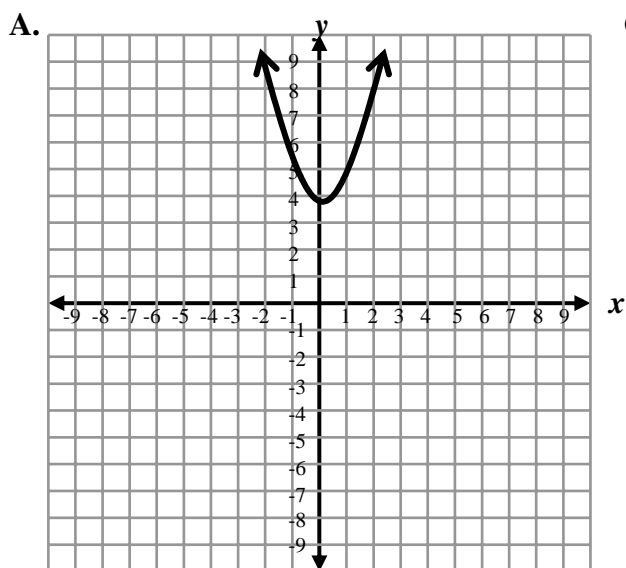
- A. 120 sq. in.
  - B. 108 sq. in.
  - C. 96 sq. in.
  - D. 48 sq. in.
18. What is the image of R when  $\square RSTU$  is translated 3 units down and 6 units right?



- A.  $(-1, 1)$
- B.  $(1, -1)$
- C.  $(1, 4)$
- D.  $(4, 1)$

19. Which of the following represents the graph of the equation below?

$$y = x^2 + 4$$



## **Standard 5: Structure and Logic**

### **General concepts you should know:**

- Inductive and deductive reasoning
- Conjectures
- Validity of arguments

20. Which of the following is a correct procedure for solving the equation below?

$$2(x - 6) - 12 = -3(x + 5)$$

- A.**  $2(x - 6) - 12 = -3(x + 5)$   
 $2x - 6 - 12 = -3x + 5$   
 $2x - 18 = -3x + 5$   
 $5x - 18 = 5$   
 $5x = 23$   
 $x = \frac{23}{5}$
- B.**  $2(x - 6) - 12 = -3(x + 5)$   
 $2x - 12 - 12 = -3x + 15$   
 $2x = -3x + 15$   
 $5x = 15$   
 $x = 3$
- C.**  $2(x - 6) - 12 = -3(x + 5)$   
 $2x - 12 - 12 = -3x - 15$   
 $2x - 24 = -3x - 15$   
 $5x - 24 = -15$   
 $5x = -39$   
 $x = \frac{39}{5}$
- D.**  $2(x - 6) - 12 = -3(x + 5)$   
 $2x - 12 - 12 = -3x - 15$   
 $2x - 24 = -3x - 15$   
 $5x - 24 = -15$   
 $5x = 9$   
 $x = \frac{9}{5}$

21. Let  $n$  be any irrational number. Which of the following is always true about  $\frac{n}{2}$ ?

- A.**  $\frac{n}{2}$  is a whole number
- B.**  $\frac{n}{2}$  is an odd integer
- C.**  $\frac{n}{2}$  is a prime number
- D.**  $\frac{n}{2}$  is an irrational number

# Appendix A: Scoring Keys

## Reading Key

Question #1: D  
Question #2: B  
Question #3: A  
Question #4: C  
Question #5: A  
Question #6: D  
Question #7: B  
Question #8: D  
Question #9: C  
Question #10: A  
Question #11: C

## Mathematics Key:

Question #1: A  
Question #2: C  
Question #3: B  
Question #4: C  
Question #5: D  
Question #6: D  
Question #7: B  
Question #8: C  
Question #9: A  
Question #10: D  
Question #11: B  
Question #12: A  
Question #13: C  
Question #14: A  
Question #15: C  
Question #16: B  
Question #17: B  
Question #18: C  
Question #19: A  
Question #20: D  
Question #21: D

NOTES:

## Appendix B IDEAS and CONTENT

<p><b>6</b></p> <p>The writing is exceptionally clear, focused and interesting. It holds the reader's attention throughout. Main ideas stand out and are developed by strong support and rich details suitable to audience and purpose. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• clarity, focus, and control.</li> <li>• main idea(s) that stand out.</li> <li>• supporting, relevant, carefully selected details; when appropriate, use of resources provides strong, accurate, credible support</li> <li>• a thorough, balanced, in-depth explanation/ exploration of the topic; the writing makes connections and shares insights.</li> <li>• content and selected details that are well suited to audience and purpose.</li> </ul>	<p><b>5</b></p> <p>The writing is clear, focused and interesting. It holds the reader's attention. Main ideas stand out and are developed by supporting details suitable to audience and purpose. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• clarity, focus, and control.</li> <li>• main idea(s) that stand out.</li> <li>• supporting, relevant, carefully selected details; when appropriate, use of resources provides strong, accurate, credible support.</li> <li>• a thorough, balanced explanation/exploration of the topic; the writing makes connections and shares insights.</li> <li>• content and selected details that are well-suited to audience and purpose.</li> </ul>	<p><b>4</b></p> <p>The writing is clear and focused. The reader can easily understand the main ideas. Support is present, although it may be limited or rather general. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• an easily identifiable purpose.</li> <li>• clear main idea(s)</li> <li>• supporting details that are relevant, but may be overly general or limited in places; when appropriate, resources are used to provide accurate support.</li> <li>• a topic that is explored/explained, although developmental details may occasionally be out of balance with the main idea(s); some connections and insights may be present.</li> <li>• content and selected details that are relevant, but perhaps not consistently well chosen for audience and purpose.</li> </ul>	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">APPENDIX B – Official Scoring Guide for AIMS Writing</p>
<p><b>3</b></p> <p>The reader can understand the main ideas, although they may be overly broad or simplistic, and the results may not be effective. Supporting detail is often limited, insubstantial, overly general, or occasionally slightly off-topic. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• an easily identifiable purpose and main idea(s).</li> <li>• predictable or overly-obvious main ideas or plot; conclusions or main points seem to echo observations heard elsewhere.</li> <li>• support that is attempted; but developmental details that are often limited in scope, uneven, somewhat off-topic, predictable, or overly general.</li> <li>• details that may not be well-grounded in credible resources; they may be based on clichés, stereotypes or questionable sources of information.</li> <li>• difficulties when moving from general observations to specifics.</li> </ul>	<p><b>2</b></p> <p>Main ideas and purpose are somewhat unclear or development is attempted but minimal. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• a purpose and main idea(s) that may require extensive inferences by the reader.</li> <li>• minimal development; insufficient details.</li> <li>• irrelevant details that clutter the text.</li> <li>• Extensive repetition of detail.</li> </ul>	<p><b>1</b></p> <p>The writing lacks a central idea or purpose. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• ideas that are extremely limited or simply unclear.</li> <li>• attempts at development that are minimal or non-existent; the paper is too short to demonstrate the development of an idea.</li> </ul>	

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## ORGANIZATION

<p><b>6</b></p> <p>The organization enhances the central idea(s) and its development. The order and structure are compelling and move the reader through the text easily. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• effective, perhaps creative, sequencing; the organizational structure fits the topic, and the writing is easy to follow.</li> <li>• a strong, inviting beginning that draws the reader in and a strong satisfying sense of resolution or closure.</li> <li>• smooth, effective transitions among all elements (sentences, paragraphs, and ideas).</li> <li>• details that fit where placed.</li> </ul>	<p><b>5</b></p> <p>The organization enhances the central idea(s) and its development. The order and structure are strong and move the reader through the text. The writing is characterized by.</p> <ul style="list-style-type: none"> <li>• effective sequencing; the organizational structure fits the topic, and the writing is easy to follow.</li> <li>• an inviting beginning that draws the reader in and a satisfying sense of resolution or closure.</li> <li>• smooth, effective transitions among all elements (sentences, paragraphs, and ideas).</li> <li>• details that fit where placed.</li> </ul>	<p><b>4</b></p> <p>Organization is clear and coherent. Order and structure are present, but may seem formulaic. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• clear sequencing.</li> <li>• an organization that may be predictable.</li> <li>• a recognizable, developed beginning that may not be particularly inviting; a developed conclusion that may lack subtlety.</li> <li>• a body that is easy to follow with details that fit where placed.</li> <li>• transitions that may be stilted or formulaic.</li> <li>• organization which helps the reader, despite some weaknesses.</li> </ul>
<p><b>3</b></p> <p>An attempt has been made to organize the writing; however, the overall structure is inconsistent or skeletal. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• attempts at sequencing, but the order or the relationship among ideas may occasionally be unclear.</li> <li>• a beginning and an ending which, although present, are either undeveloped or too obvious (e.g. “My topic is...”, “These are all the reasons that...”)</li> <li>• transitions that sometimes work. The same few transitional devices (e.g., coordinating conjunctions, numbering, etc.) may be overused.</li> <li>• a structure that is skeletal or too rigid.</li> <li>• placement of details that may not always be effective.</li> <li>• organization which lapses in some places, but helps the reader in others.</li> </ul>	<p><b>2</b></p> <p>The writing lacks a clear organizational structure. An occasional organizational device is discernible; however, the writing is either difficult to follow and the reader has to reread substantial portions, or the piece is simply too short to demonstrate organizational skills. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• some attempts at sequencing, but the order or the relationship among ideas is frequently unclear.</li> <li>• a missing or extremely undeveloped beginning, body, and/or ending.</li> <li>• a lack of transitions, or when present, ineffective or overused.</li> <li>• a lack of an effective organizational structure.</li> <li>• details that seem to be randomly placed, leaving the reader frequently confused.</li> </ul>	<p><b>1</b></p> <p>The writing lacks coherence; organization seems haphazard and disjointed. Even after rereading, the reader remains confused. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• a lack of effective sequencing.</li> <li>• a failure to provide an identifiable beginning, body and/or ending.</li> <li>• a lack of transitions.</li> <li>• pacing that is consistently awkward; the reader feels either mired down in trivia or rushed along too rapidly.</li> <li>• a lack of organization which ultimately obscures or distorts the main point.</li> </ul>

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## VOICE

<p><b>6</b></p> <p>The writer has chosen a voice appropriate for the topic, purpose and audience. The writer seems deeply committed to the topic, and there is an exceptional sense of “writing to be read.” The writing is expressive, engaging, or sincere. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• an effective level of closeness to or distance from the audience (e.g., a narrative should have a strong personal voice, while an expository piece may require extensive use of outside resources and a more academic voice; nevertheless, both should be engaging, lively, or interesting. Technical writing may require greater distance.).</li> <li>• an exceptionally strong sense of audience; the writer seems to be aware of the reader and of how to communicate the message most effectively. The reader may discern the writer behind the words and feel a sense of interaction.</li> <li>• a sense that the topic has come to life; when appropriate, the writing may show originality, liveliness, honesty, conviction, excitement, humor, or suspense.</li> </ul>	<p><b>5</b></p> <p>The writer has chosen a voice appropriate for the topic, purpose, and audience. The writer seems committed to the topic, and there is a sense of “writing to be read.” The writing is expressive, engaging or sincere. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• an appropriate level of closeness to or distance from the audience (e.g., a narrative should have a strong personal voice while an expository piece may require extensive use of outside resources and a more academic voice; nevertheless, both should be engaging, lively or interesting. Technical writing may require greater distance.).</li> <li>• a strong sense of audience; the writer seems to be aware of the reader and of how to communicate the message most effectively. The reader may discern the writer behind the words and feel a sense of interaction.</li> <li>• a sense that the topic has come to life; when appropriate, the writing may show originality, liveliness, honesty, conviction, excitement, humor, or suspense.</li> </ul>	<p><b>4</b></p> <p>A voice is present. The writer demonstrates commitment to the topic, and there may be a sense of “writing to be read.” In places, the writing is expressive, engaging, or sincere. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• a questionable or inconsistent level of closeness to or distance from the audience.</li> <li>• a sense of audience; the writer seems to be aware of the reader but has not consistently employed an appropriate voice. The reader may glimpse the writer behind the words and feel a sense of interaction in places.</li> <li>• liveliness, sincerity, or humor when appropriate; however, at times the writing may be either inappropriately casual or personal, or inappropriately formal and stiff.</li> </ul>
<p><b>3</b></p> <p>The writer’s commitment to the topic seems inconsistent. A sense of the writer may emerge at times; however, the voice is either inappropriately personal or inappropriately impersonal. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• a limited sense of audience; the writer’s awareness of the reader is unclear.</li> <li>• an occasional sense of the writer behind the words; however, the voice may shift or disappear a line or two later and the writing become somewhat mechanical.</li> <li>• a limited ability to shift to a more objective voice when necessary.</li> </ul>	<p><b>2</b></p> <p>The writing provides little sense of involvement or commitment. There is no evidence that the writer has chosen a suitable voice. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• little engagement of the writer; the writing tends to be largely flat, lifeless, stiff, or mechanical.</li> <li>• a voice that is likely to be overly informal and personal.</li> <li>• a lack of audience awareness; there is little sense of “writing to be read.”</li> <li>• little or no hint of the writer behind the words. There is rarely a sense of interaction between reader and writer.</li> </ul>	<p><b>1</b></p> <p>The writing seems to lack a sense of involvement or commitment. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• no engagement of the writer; the writing is flat and lifeless.</li> <li>• a lack of audience awareness; there is no sense of “writing to be read.”</li> <li>• no hint of the writer behind the words. There is no sense of interaction between writer and reader; the writing does not involve or engage the reader.</li> </ul>

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## WORD CHOICE

<p><b>6</b> Words convey the intended message in an exceptionally interesting, precise, and natural way appropriate to audience and purpose. The writer employs a rich, broad range of words, which have been carefully chosen and thoughtfully placed for impact. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• accurate, strong, specific words; powerful words energize the writing.</li> <li>• fresh, original expression; slang, if used, seems purposeful and is effective.</li> <li>• vocabulary that is striking and varied, but that is natural and not overdone.</li> <li>• ordinary words used in an unusual way.</li> <li>• words that evoke strong images; figurative language may be used.</li> </ul>	<p><b>5</b> Words convey the intended message in an interesting, precise, and natural way appropriate to audience and purpose. The writer employs a broad range of words which have been carefully chosen and thoughtfully placed for impact. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• accurate, specific words; word choices energize the writing.</li> <li>• fresh, vivid expression; slang, if used, seems purposeful and is effective.</li> <li>• vocabulary that may be striking and varied, but that is natural and not overdone.</li> <li>• ordinary words used in an unusual way.</li> <li>• words that evoke clear images; figurative language may be used.</li> </ul>	<p><b>4</b> Words effectively convey the intended message. The writer employs a variety of words that are functional and appropriate to audience and purpose. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• words that work but do not particularly energize the writing.</li> <li>• expression that is functional; however, slang, if used, does not seem purposeful and is not particularly effective.</li> <li>• attempts at colorful language that may occasionally seem overdone.</li> <li>• occasional overuse of technical language or jargon.</li> <li>• rare experiments with language; however, the writing may have some fine moments and generally avoids clichés.</li> </ul>
<p><b>3</b> Language is quite ordinary, lacking interest, precision and variety, or may be inappropriate to audience and purpose in places. The writer does not employ a variety of words, producing a sort of “generic” paper filled with familiar words and phrases. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• words that work, but that rarely capture the reader’s interest.</li> <li>• expression that seems mundane and general; slang, if used, does not seem purposeful and is not effective.</li> <li>• attempts at colorful language that seem overdone or forced.</li> <li>• words that are accurate for the most part, although misused words may occasionally appear, technical language or jargon may be overused or inappropriately used.</li> <li>• reliance on clichés and overused expressions.</li> </ul>	<p><b>2</b> Language is monotonous and/or misused, detracting from the meaning and impact. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• words that are colorless, flat or imprecise.</li> <li>• monotonous repetition or overwhelming reliance on worn expressions that repeatedly distract from the message.</li> <li>• images that are fuzzy or absent altogether.</li> </ul>	<p><b>1</b> The writing shows an extremely limited vocabulary or is so filled with misuses of words that the meaning is obscured. Only the most general kind of message is communicated because of vague or imprecise language. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• general, vague words that fail to communicate.</li> <li>• an extremely limited range of words.</li> <li>• words that simply do not fit the text; they seem imprecise, inadequate, or just plain wrong.</li> </ul>

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## SENTENCE FLUENCY

<p><b>6</b></p> <p>The writing has an effective flow and rhythm. Sentences show a high degree of craftsmanship, with consistently strong and varied structure that makes expressive oral reading easy and enjoyable. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• a natural, fluent sound; it glides along with one sentence flowing effortlessly into the next.</li> <li>• extensive variation in sentence structure, length, and beginnings that add interest to the text.</li> <li>• sentence structure that enhances meaning by drawing attention to key ideas or reinforcing relationships among ideas.</li> <li>• varied sentence patterns that create an effective combination of power and grace.</li> <li>• strong control over sentence structure; fragments, if used at all, work well.</li> <li>• stylistic control; dialogue, if used, sounds natural.</li> </ul>	<p><b>5</b></p> <p>The writing has an easy flow and rhythm. Sentences are carefully crafted, with strong and varied structure that makes expressive oral reading easy and enjoyable. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• a natural, fluent sound; it glides along with one sentence flowing into the next.</li> <li>• variation in sentence structure, length, and beginnings that add interest to the text.</li> <li>• sentence structure that enhances meaning.</li> <li>• control over sentence structure; fragments, if used at all, work well.</li> <li>• stylistic control; dialogue, if used sounds natural.</li> </ul>	<p><b>4</b></p> <p>The writing flows; however, connections between phrases or sentences may be less than fluid. Sentence patterns are somewhat varied, contributing to ease in oral reading. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• a natural sound; the reader can move easily through the piece, although it may lack a certain rhythm and grace.</li> <li>• some repeated patterns of sentence structure, length, and beginnings that may detract somewhat from overall impact.</li> <li>• strong control over simple sentence structures, but variable control over more complex sentences; fragments, if present, are usually effective.</li> <li>• occasional lapses in stylistic control; dialogue, if used, sounds natural for the most part, but may at times sound stilted or unnatural.</li> </ul>
<p><b>3</b></p> <p>The writing tends to be mechanical rather than fluid. Occasional awkward constructions may force the reader to slow down or reread. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• some passages that invite fluid oral reading; however, others do not.</li> <li>• some variety in sentences structure, length, and beginnings, although the writer falls into repetitive sentence patterns.</li> <li>• good control over simple sentence structures, but little control over more complex sentences; fragments, if present, may not be effective.</li> <li>• sentences which, although functional, lack energy.</li> <li>• lapses in stylistic control; dialogue, if used, may sound stilted or unnatural.</li> </ul>	<p><b>2</b></p> <p>The writing tends to be either choppy or rambling. Awkward constructions often force the reader to slow down or reread. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• significant portions of the text that are difficult to follow or read aloud.</li> <li>• sentence patterns that are monotonous (e.g., subject-verb or subject-verb-object).</li> <li>• a significant number of awkward, choppy, or rambling constructions.</li> </ul>	<p><b>1</b></p> <p>The writing is difficult to follow or to read aloud. Sentences tend to be incomplete, rambling, or very awkward. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• text that does not invite—and may not even permit—smooth oral reading.</li> <li>• confusing word order that is often jarring and irregular.</li> <li>• sentence structure that frequently obscures meaning.</li> <li>• sentences that are disjointed, confusing, or rambling.</li> </ul>

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## CONVENTIONS

<p><b>6</b></p> <p>The writing demonstrates exceptionally strong control of standard writing conventions (e.g., punctuation, spelling, capitalization, paragraph breaks, grammar and usage) and uses them effectively to enhance communication. Errors are so few and so minor that the reader can easily skim right over them unless specifically searching for them. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• strong control of conventions; manipulation of conventions may occur for stylistic effect.</li> <li>• strong, effective use of punctuation that guides the reader through the text.</li> <li>• correct spelling, even of more difficult words.</li> <li>• paragraph breaks that reinforce the organizational structure.</li> <li>• correct grammar and usage that contribute to clarity and style.</li> <li>• skill in using a wide range of conventions in a sufficiently long and complex piece.</li> <li>• little or no need for editing.</li> </ul>	<p><b>5</b></p> <p>The writing demonstrates strong control of standard writing conventions (e.g., punctuation, spelling, capitalization, paragraph breaks, grammar and usage) and uses them effectively to enhance communication. Errors are so few and so minor that they do not impede readability. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• strong control of conventions.</li> <li>• effective use of punctuation that guides the reader through the text.</li> <li>• correct spelling, even of more difficult words.</li> <li>• paragraph breaks that reinforce the organizational structure.</li> <li>• correct capitalization; errors, if any, are minor.</li> <li>• correct grammar and usage that contribute to clarity and style.</li> <li>• skill in using a wide range of conventions in a sufficiently long and complex piece.</li> <li>• little need for editing.</li> </ul>	<p><b>4</b></p> <p>The writing demonstrates control of standard writing conventions (e.g., punctuation, spelling, capitalization, paragraph breaks, grammar and usage). Minor errors, while perhaps noticeable, do not impede readability. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• control over conventions used, although a wide range is not demonstrated.</li> <li>• correct end-of-sentence punctuation, internal punctuation may sometimes be incorrect.</li> <li>• spelling that is usually correct, especially on common words.</li> <li>• basically sound paragraph breaks that reinforce the organizational structure.</li> <li>• correct capitalization; errors, if any, are minor.</li> <li>• occasional lapses in correct grammar and usage; problems are not severe enough to distort meaning or confuse the reader.</li> <li>• moderate need for editing.</li> </ul>
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<p><b>3</b></p> <p>The writing demonstrates limited control of standard writing conventions (e.g., punctuation, spelling, capitalization, paragraph breaks, grammar and usage). Errors begin to impede readability. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• some control over basic conventions; the text may be too simple to reveal mastery.</li> <li>• end-of-sentence punctuation that is usually correct; however, internal punctuation contains frequent errors.</li> <li>• spelling errors that distract the reader; misspelling of common words occurs.</li> <li>• paragraphs that sometimes run together or begin at ineffective places.</li> <li>• capitalization errors.</li> <li>• errors in grammar and usage that do not block meaning but do distract the reader.</li> <li>• significant need for editing.</li> </ul>	<p><b>2</b></p> <p>The writing demonstrates little control of standard writing conventions. Frequent, significant errors impede readability. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• little control over basic conventions.</li> <li>• many end-of-sentence punctuation errors; internal punctuation contains frequent errors.</li> <li>• spelling errors that frequently distract the reader; misspelling of common words often occurs.</li> <li>• paragraphs that often run together or begin in ineffective places.</li> <li>• capitalization that is inconsistent or often incorrect.</li> <li>• errors in grammar and usage that interfere with readability and meaning.</li> <li>• substantial need for editing.</li> </ul>	<p><b>1</b></p> <p>Numerous errors in usage, spelling, capitalization, and punctuation repeatedly distract the reader and make the text difficult to read. In fact, the severity and frequency of errors are so overwhelming that the reader finds it difficult to focus on the message and must reread for meaning. The writing is characterized by</p> <ul style="list-style-type: none"> <li>• very limited skill in using conventions.</li> <li>• basic punctuation (including end-of-sentence punctuation) that tends to be omitted, haphazard, or incorrect.</li> <li>• frequent spelling errors that significantly impair readability.</li> <li>• paragraph breaks that may be highly irregular or so frequent (every sentence) that they bear no relation to the organization of the text.</li> <li>• capitalization that appears to be random.</li> <li>• a need for extensive editing.</li> </ul>
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## APPENDIX C: AIMS Reference Sheet

	Area	Key
Triangle	$A = \frac{1}{2}bh$	$b$ = base $h$ = height
Rectangle	$A = lw$	$l$ = length $w$ = width
Trapezoid	$A = \frac{1}{2}h(b_1 + b_2)$	$d$ = diameter $r$ = radius $\ell$ = slant height
Parallelogram	$A = bh$	$B$ = Area of base $P$ = Perimeter of base
Circle	$A = \pi r^2$	Use 3.14 or $\frac{22}{7}$ for $\pi$
		$Circumference = \pi d = 2\pi r$
	Volume	Total Surface Area
Right Circular Cone	$V = \frac{1}{3}\pi r^2 h$	$T = \frac{1}{2}(2\pi r)\ell + \pi r^2 = \pi r\ell + \pi r^2$
Pyramid	$V = \frac{1}{3}Bh$	$T = B + \frac{1}{2}P\ell$
Sphere	$V = \frac{4}{3}\pi r^3$	$T = 4\pi r^2$
Right Circular Cylinder	$V = \pi r^2 h$	$T = 2\pi rh + 2\pi r^2$
Rectangular Solid	$V = Bh$	$T = 2B + Ph$

### Linear Equation Forms

#### Point-Slope Form:

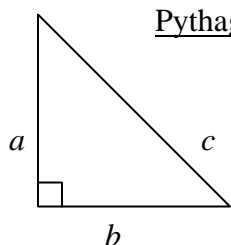
$$y - y_1 = m(x - x_1)$$

#### Standard or General Form:

$$Ax + By = C$$

#### Slope-Intercept Form:

$$y = mx + b$$



#### Pythagorean Theorem:

$$c^2 = a^2 + b^2$$

### Coordinate Geometry

Given: Points  $A(x_1, y_1)$ ,  $B(x_2, y_2)$

#### Distance between two points

$$AB = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

#### Midpoint between two points

$$\text{Midpoint of } \overline{AB} = \left( \frac{x_2 + x_1}{2}, \frac{y_2 + y_1}{2} \right)$$

#### Slope between two points

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

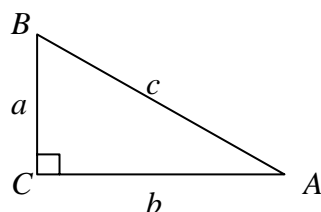
Quadratic Formula:  $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

# AIMS Reference Sheet

Sum of the measures of the interior angles of a convex polygon with $n$ -sides: $S = (n - 2)(180^\circ)$	Distance, rate, time formula, where $d$ = distance, $r$ = rate, $t$ = time: $d = rt$
Permutations of $n$ objects taken $r$ at a time: ${}_nP_r = \frac{n!}{(n-r)!}$	Combinations of $n$ objects taken $r$ at a time: ${}_nC_r = \frac{n!}{(n-r)!r!}$

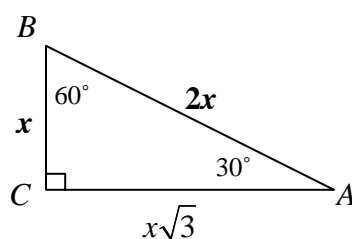
## Special Right Triangle Relationships

Trigonometric Ratios

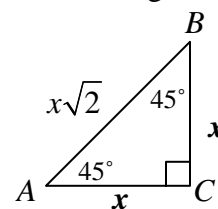


$$\sin A = \frac{a}{c} \quad \cos A = \frac{b}{c} \quad \tan A = \frac{a}{b}$$

30°-60°-90° Triangle Relationships

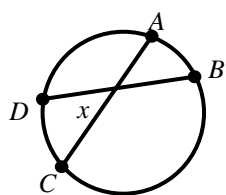


45°-45°-90° Triangle Relationships

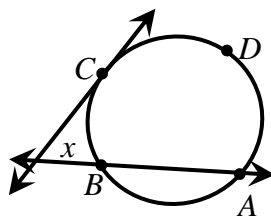


## Additional Formulas

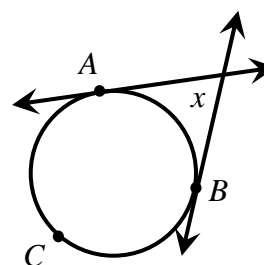
Area of a sector: $A = \pi r^2 \frac{\text{degrees in corresponding arc}}{360^\circ}$	Length of a circular arc: $\text{Length of } \widehat{AB} = 2\pi r \frac{m\widehat{AB}}{360^\circ}$
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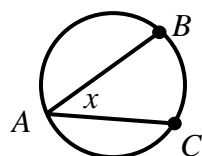
$$m\angle x = \frac{1}{2}(m\widehat{AB} + m\widehat{CD})$$



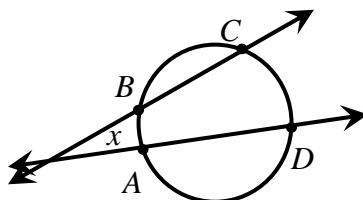
$$m\angle x = \frac{1}{2}(m\widehat{ADC} - m\widehat{BC})$$



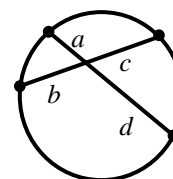
$$m\angle x = \frac{1}{2}(m\widehat{ACB} - m\widehat{AB})$$



$$m\angle x = \frac{1}{2}m\widehat{BC}$$



$$m\angle x = \frac{1}{2}(m\widehat{CD} - m\widehat{AB})$$



$$\frac{a}{b} = \frac{c}{d}$$

# APPENDIX D – TEST-TAKING STRATEGIES

## A REVIEW

- **Be physically prepared.** Get plenty of rest the night before. On the day of the test, eat a healthy breakfast.
- **Be mentally prepared.** Try to relax and do your best. View the test as an opportunity to truly show what you know and are able to do.
- **Listen to directions** as the teacher explains them. **Ask** about any directions you do not understand.
- **Read the directions carefully.**
- **Look for key words** that will help you identify what the question is asking you to do.
- **Take your time** and work at your own pace. **AIMS is not a timed test**, but you do want to use your time well.
- **Move on** to the next item if you are stuck. **Be sure to return** to it later.
- **Make educated guesses** if you are unsure of an answer. First eliminate choices that are obviously incorrect, then logically select from the remaining choices.
- **Take the time to review your answers** when you are finished. **Re-read** your written responses to check that they are clear.



# NOTES